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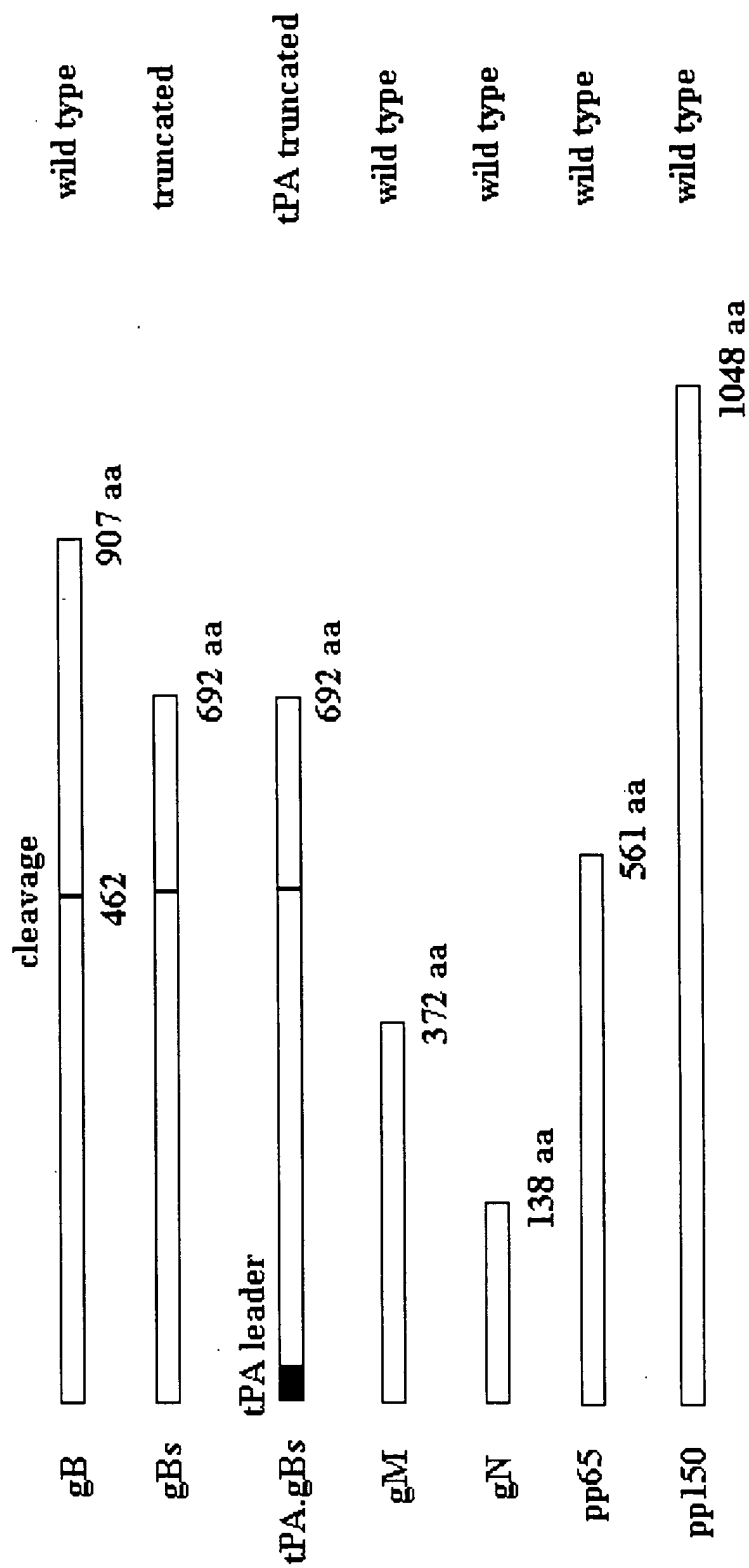


FIG. 1

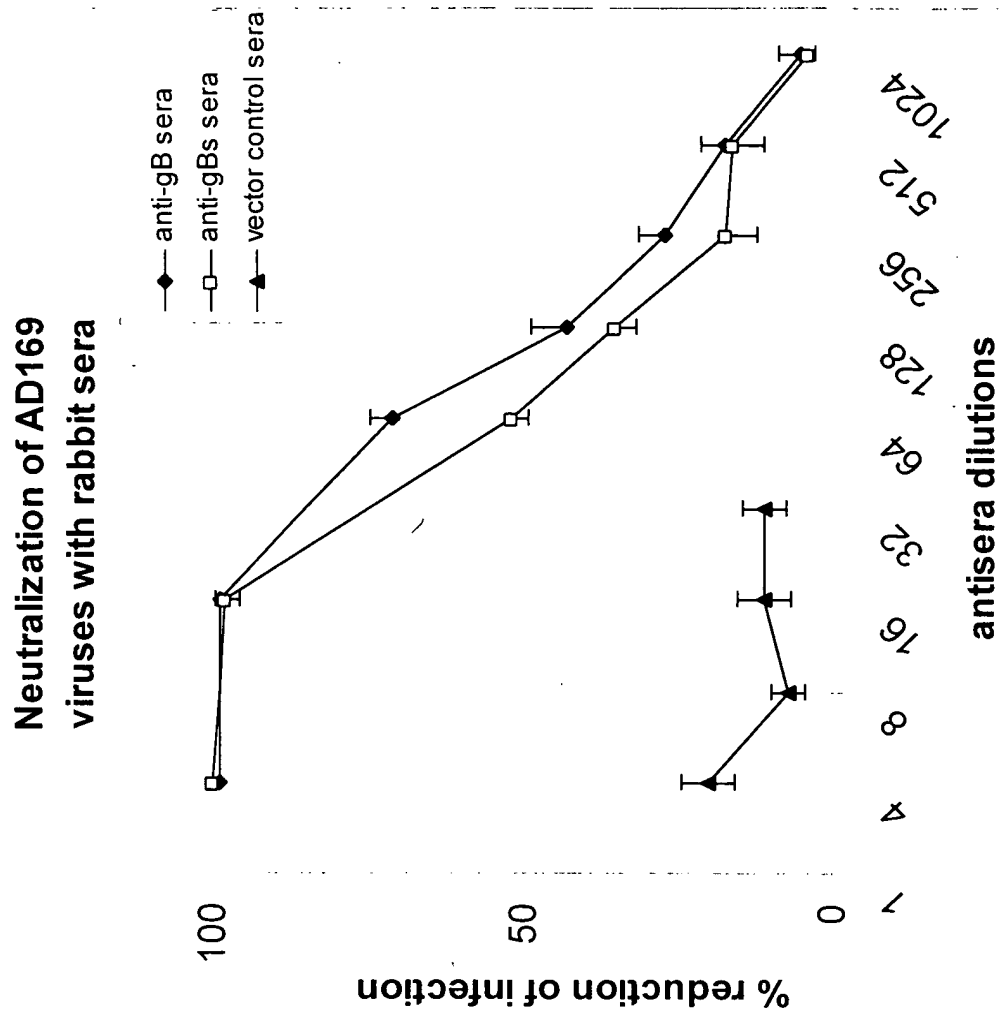


FIG. 2

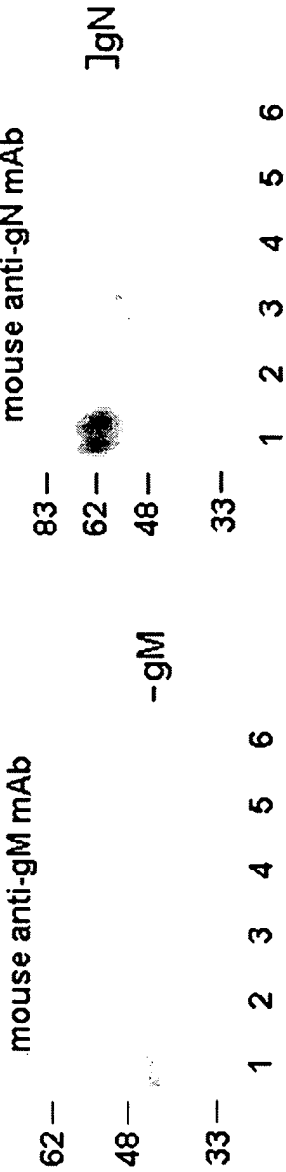


FIG. 3A

FIG. 3B

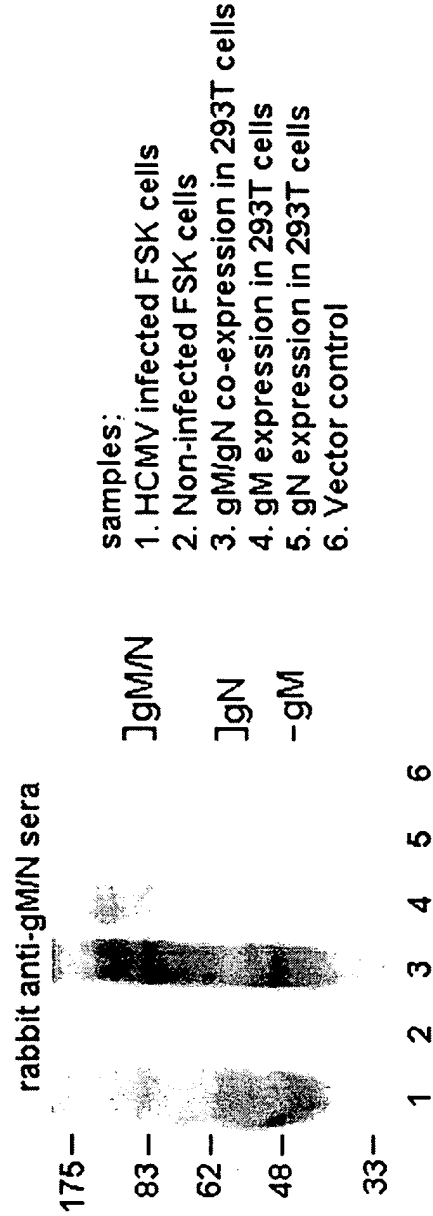


FIG. 4

Applicant(s): Lu et al.

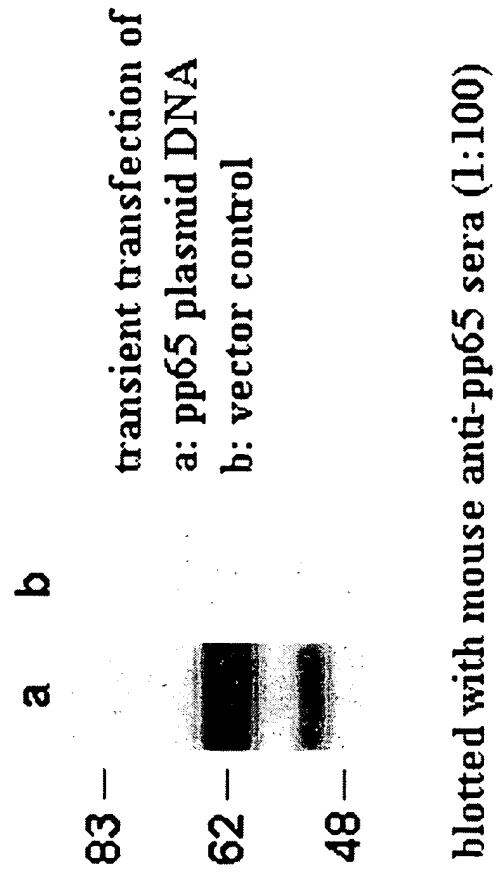
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FIG. 5

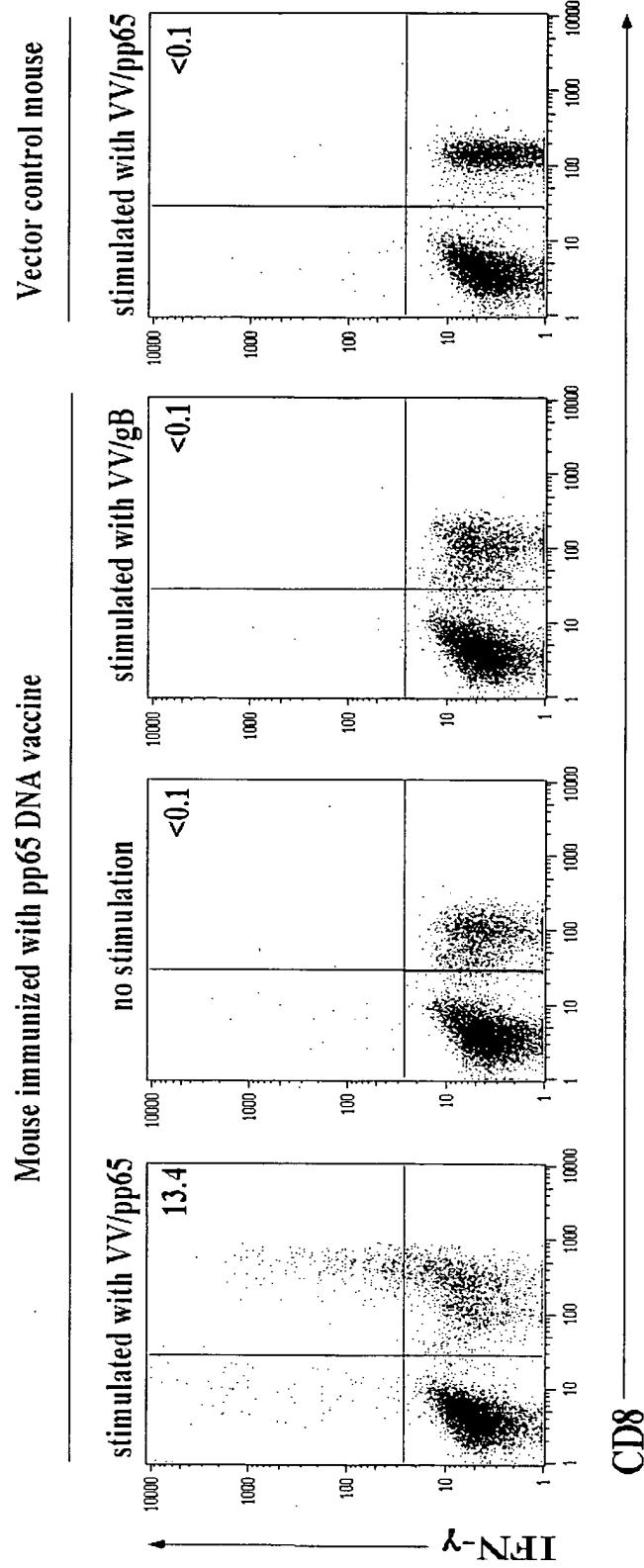


FIG. 6A

FIG. 6B

FIG. 6C

FIG. 6D

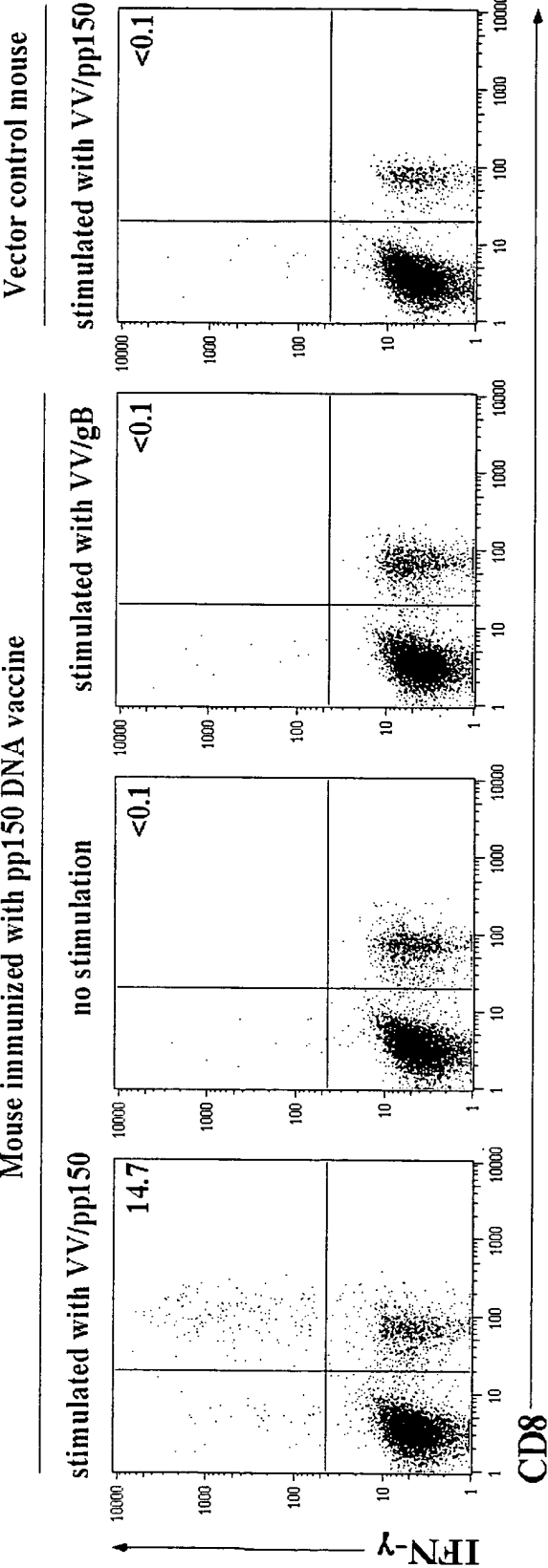


FIG. 7A

FIG. 7B

FIG. 7C

FIG. 7D





FIG. 8A

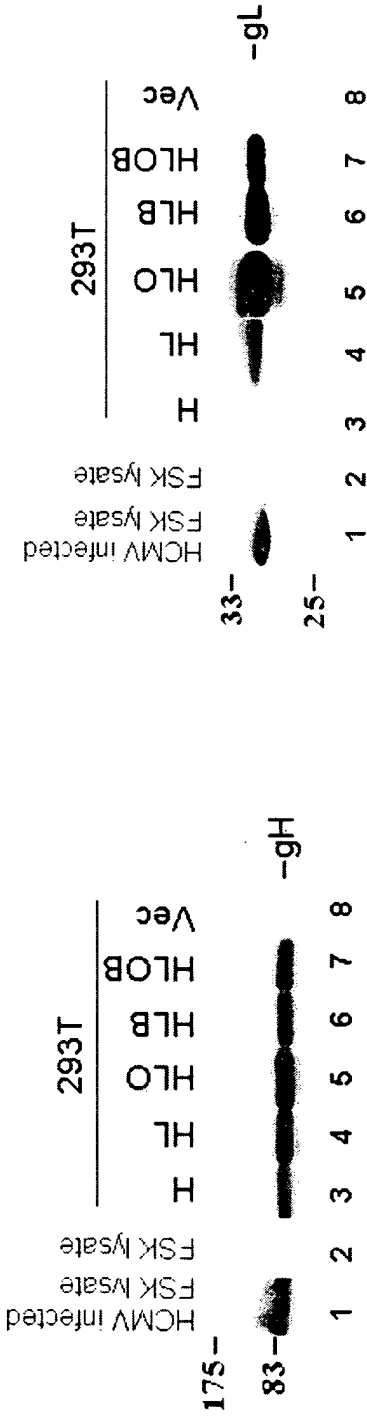
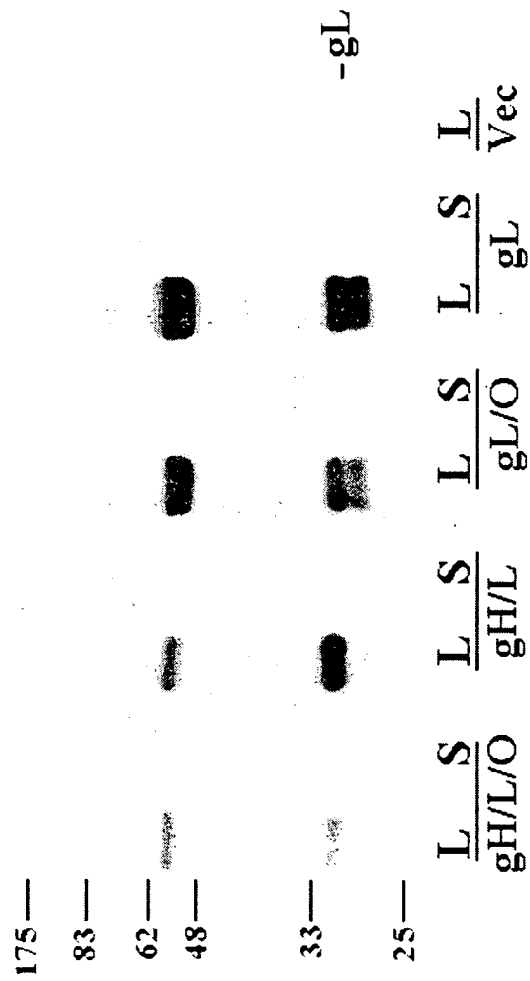
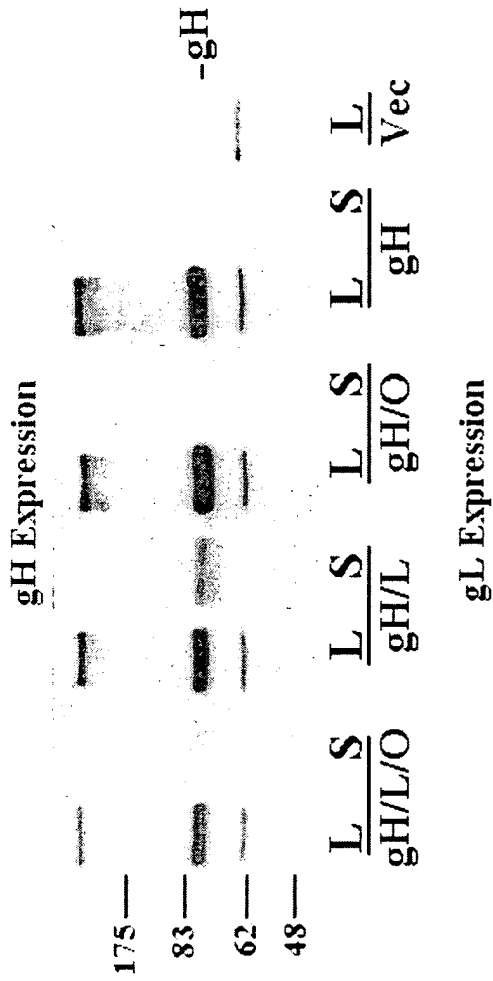


FIG. 8B

FIG. 8C



HCMV gB cDNA Sequence

ATGGAATCCAGGATCTGGTGCCTGGTAGTCTGCGTTAACCTGTGTATCGTCTGTCTGGGTGCTG  
CGGTTTCCTCTTCTAGTACTTCCCATGCAACTTCTTCTACTCACAATGGAAGCCATACTTCTCG  
TACGACGTCTGCTCAAACCCGGTCAGTCTATTCTCAACACGTAACGTCTTCTGAAGCCGTCAG  
TCATAGAGCCAACGAGACTATCTACAACACTACCCTCAAGTACGGAGATGTGGTGGGAGTCA  
ACACTACCAAGTACCCCTATCGCGTGTGTTCTATGGCCAGGGTACGGATCTTATTCGCTTTGA  
ACGTAATATCATCTGCACCTCGATGAAGCCTATCAATGAAGACTTGGATGAGGGCATCATGGT  
GGTCTACAAGCGCAACATCGTGGCGCACACCTTTAAGGTACGGGTCTACCAAAAGGTTTTGAC  
GTTTCGTCTAGCTACGCTTACATCTACACCACTTATCTGCTGGGCAGCAATACGGAATACGT  
GGCGCTCCTATGTGGGAGATTATCATCAACAAGTTTGCTCAATGCTACAGTTCCTACAG  
CCGCGTTATAGGAGGCACGGTTTTCTGTCATATCATAGGGACAGTTATGAAAACAAAACCAT  
GCAATTAATTCCCGACGATTATCCAACACCCACAGTACCCGTTACGTGACGGTCAAGGATCA  
GTGGCACAGCCGCGGCACCTGGCTCTATCGTGAGACCTGTAATCTGAACCTGTATGCTGAC  
CATCACTACTGCGCGCTCCAAGTATCCTTATCATTTTTTTTGCAACTTCCACGGGTGATGTGGTT  
TACATTTCTCCTTTCTACAACGGAACCAATCGCAATGCCAGCTACTTTGGAGAAAACGCCGAC  
AAGTTTTTTCATTTTCCCGAACTACACCATCGTTTCCGACTTTGGAAGACCCAACGCTGCGCCAG  
AAACCCATAGGTTGGTGGCTTTTCTCGAACGTGCCGACTCGGTGATCTCTTGGGATATACAGG  
ACGAGAAGAATGTACCTGCCAGCTCACCTTCTGGGAAGCCTCGGAACGTACTATCCGTTCCG  
AAGCCGAAGACTCGTACCACTTTTCTTCTGCCAAAATGACTGCAACTTTTCTGTCTAAGAAAC  
AAGAAGTGAACATGTCCGACTCCGCGCTGGACTGCGTACGTGATGAGGCTATAAATAAGTTA  
CAGCAGATTTTCAATACTTCATACAATCAAACATATGAAAAATACGGAAACGTGTCCGTCTTC  
GAAACCAGCGCGGTCTGGTGGTGTCTGGCAAGGCATCAAGCAAAAATCTTTGGTGGAAATT  
GGAACGTTTGGCCAATCGATCCAGTCTGAATATCACTCATAGGACCAGAAGAAGTACGAGTG  
ACAATAATACAACCTCATTTGTCCAGCATGGAATCGGTGCACAATCTGGTCTACGCCAGCTGC  
AGTTACCTATGACACGTTGCGCGGTTACATCAACCGGGCGCTGGCGCAAATCGCAGAAGCCT  
GGTGTGTGGATCAACGGCGCACCCCTAGAGGTCTTCAAGGAACTCAGCAAGATCAACCCGTC  
GCCATTCTCTCGGCCATTTACAACAAACCGATTGCCGCGCGTTTCATGGGTGATGTCTTGGGCC  
TGGCCAGCTGCGTGACCATCAACCAACACGCTCAAGGTGCTGCGTGATATGAACGTGAAG  
GAATCGCCAGGACGCTGCTACTCACGACCCGTGGTCATCTTTAATTCGCCAACAGCTCGTAC  
GTGCAGTACGGTCAACTGGGCGAGGACAACGAAATCCTGTTGGGCAACCACCGCACTGAGGA  
ATGTCAGCTTCCCAGCCTCAAGATCTTCATCGCCGGGAACCTCGGCCTACGAGTACGTGGACTA  
CCTCTTCAAACGCATGATTGACCTCAGCAGTATCTCCACCGTCGACAGCATGATCGCCCTGGA  
TATCGACCCGCTGGAATAACCGACTTCAGGGTACTGGAACCTTACTCGCAGAAAGAGCTGCG  
TTCCAGCAACGTTTTTGACCTCGAAGAGATCATGCGCGAATTCAACTCGTACAAGCAGCGGGT  
AAAGTACGTGGAGGACAAGGTAGTCGACCCGCTACCGCCCTACCTCAAGGGTCTGGACGACC  
TCATGAGCGGCCTGGGCGCCGCGGGAAGGCCGTTGGCGTAGCCATTGGGGCCGTGGGTGGC  
GCGGTGGCCTCCGTGGTTCGAAGGCGTTGCCACCTTCCTCAAAAACCCCTTCGGAGCCTTCACC  
ATCATCCTCGTGGCCATAGCCGTAGTCATTATCACTTATTTGATCTATACTCGACAGCGGCGTC  
TGTGCACGCAGCCGCTGCAGAACCTCTTCCCTATCTGGTGTCCGCCGACGGGACCACCGTGA  
CGTCGGGCAGCACCAAGACACGTCGTTACAGGCTCCGCCTTCCTACGAGGAAAGTGTTTATA  
ATTCTGGTCGCAAAGGACCGGGACCACCGTCGTCTGATGCATCCACGGCGGCTCCGCCTTACA  
CCAACGAGCAGGCTTACCAGATGCTTCTGGCCCTGGCCCGTCTGGACGCAGAGCAGCGAGCG  
CAGCAGAACGGTACAGATTCTTTGGACGGACAGACTGGCACGCAGGACAAGGGACAGAAGCC  
TAACCTGCTAGACCGGCTGCGACATCGCAAAAACGGCTACAGACACTTGAAAGACTCCGACG  
AAGAAGAGAACGTCTGA (SEQ ID NO:1)

FIG. 10

HCMV gB Amino Acid Sequence

MESRIWCLVVCVNL CIVCLGAAVSSSSTSHATSSTHNGSHTSRTTSAQTRSVYSQ  
HVTSSSEAVSHRANETIYNTTLKYGDVVGVNTTKYPYRVCSMAQGTDLIRFERNII  
CTSMKPINEDLDEGIMVVYKRNIVAHTFKVRVYQKVLTFRRSYAYIYTTYLLGSN  
TEYVAPPMWEIHHINKFAQCYSSYSRVIGGTVFVAYHRDSYENKTMQLIPDDYS  
NTHSTRYVTVKDQWHSRGSTWLYRETCNLNCMLTITTARSKYPYHFFATSTGDV  
VYISPFYNGTNRNASYFGENADKFFIFPNYTIVSDFGRPNAAPETHRLVAFLERAD  
SVISWDIQDEKNVTCQLTFWEASERTIRSEAEDSYHFSSAKMTATFLSKKQEVNM  
SDSALDCVRDEAINKLQQIFNTSYNQTYEKYGNVSVFETSGGLVFWQGIKQKS  
LVELERLANRSSLNITHRTRRSTSDNNTTHLSSMESVHNLVYAQLQFTYDTRLGY  
INRALAQIAEAWCVDQRRRTLEVFKELSKINPSAILSAIYNKPIAARFMGDVLGLAS  
CVTINQTSVKVLRDMNVKESPGRCYSRPVVIFNFANSSYVQYGQLGEDNEILLGN  
HRTEECQLPSLKIFIAGNSAYEYVDYLFKRMIDLSSISTVDSMIALDIDPLENTDFR  
VLELYSQKELRSSNVFDLEEIMREFNSYKQRVKYVEDKVVDPLPPYLKGLDDLM  
SGLGAAGKAVGVAIGAVGGAVASVVEGVATFLKNPFGAFTIILVAIAVVIITYLIY  
TRQRRRLCTQPLQNLFPYLVSADGTTVTSGSTKDTSLQAPPSYEESVYNSSGRKGPG  
PPSSDASTAAPPYTNEQAYQMLLALARLDAEQRAQQNGTDSLDGGQTGTQDKGQ  
KPNLLDRLRHRKNGYRHLKDSDEEENV\* (SEQ ID NO:2)

FIG. 11

HCMV gM cDNA Sequence

ATGGCCCCCTCGCACGTGGATAAGGTGAATACACGGACATGGAGCGCTTCTA  
TCGTTTTTCATGGTGCTGACTTTTGTCAACGTCAGCGTGCATCTAGTGCTGAGC  
AATTTTCCGCACCTGGGCTACCCCTGCGTCTACTATCACGTCGTGGACTTTGA  
AAGGCTCAACATGTTCGGCCTACAACGTAATGCACCTGCACACGCCTATGCTTT  
TCTTAGACTCGGTGCAGTTGGTGTGCTACGCCGTGTTTCATGCAGCTCGTCTTT  
TTAGCCGTGACCATCTACTACCTGGTATGCTGGATCAAGATCAGCATGCGCA  
AGGACAAAGGCATGAGCCTAAACCAGTCGACACGCGACATTTTCGTACATGGG  
CGACAGCCTCACAGCCTTCCTCTTCATTCTCAGCATGGACACGTTCCAACAT  
TCACACTGACCATGTCAATTCGGCTGCCCAGCATGATCGCCTTCATGGCCGCC  
GTGCACTTTTTCTGCCTGACCATTTTCAACGTGAGCATGGTCACGCAGTACCG  
CAGCTACAAACGCTCACTCTTTTTCTTCTCGCGTCTGCACCCCAAGCTCAAAG  
GTACGGTGCAGTTCCGCACGCTCATCGTCAACCTGGTAGAGGTAGCGCTTGG  
TTTCAACACCACCGTGGTAGCCATGGCCCTGTGCTACGGCTTCGGAAACAAC  
TTTTCGTGCGTACAGGCCACATGGTGTTAGCCGTCTTCGTGGTCTACGCTATC  
ATCTCCATCATCTACTTTTTACTGATCGAGGCCGTCTTTTTTCAATACGTCAAG  
GTGCAATTCGGCTACCACCTGGGCGCCTTCTTTGGACTCTGCGGCCTCATCTA  
CCCCATCGTGCAGTACGATACCTTCCTCAGCAACGAATACCGCACCGGCATC  
AGCTGGTTCGTTTCGGCATGCTCTTTTTCATATGGGCCATGTTTACGACGTGTCG  
CGCCGTCCGCTACTTTCGCGGACGCGGTAGCGGCAGTGTCAAGTACCAGGCG  
CTGGCCACAGCCTCCGGCGAAGAAGTCGCTGTGCTCAGTCACCACGACAGCT  
TGGAAGCCGTGCGCTCCGCGAAGAAGAGGACGACGACGATGATGAAGACT  
TCGAGGACGCTTAA (SEQ ID NO:3)

HCMV gM Amino Acid Sequence

MAPSHVDKVNTRTWSASIVFMVLTFVNVSVHLVLSNFPHLGYPCVYYHVVD  
FE  
RLNMSAYNVMHLHTPMLFLDSVQLVCYAVFMQLVFLAVTIYYLVCWIKISMRK  
DKGMSLNQSTRDISYMGDSLTAFLFILSMDTFQLFTLTMSFRLPSMIAFMAAVHF  
FCLTIFNVSMVTQYRSYKRSLFFFSRLHPKLKGTVQFRTLIVNLVEVALGFNTTVV  
AMALCYGFGNNFFVRTGHMVLAVFVVYAIIISIIYFLLIEAVFFQYVKVQFGYHLG  
AFFGLCGLIPIVQYDTFLSNEYRTGISWSFGMLFFIWAMFTTCRAVRYFRGRGS  
GSVKYQALATASGEEVAVLSHSDSLESRRRLREEEDDDDDDEDFDA\* (SEQ ID  
NO:4)

FIG. 12

HCMV gN cDNA Sequence

ATGGAGTGGAACACACTAGTATTAGGTCTTTTAGTTTTATCGGTAGTGGCAGA  
GAGTTCTGGTAACAATTCATCCACGTCAACCTCTGCAACTACATCAAAGTCTT  
CTGCTAGCGTATCAACTACCAAATAACAACAGTTGCAACAACCTTCTGCAAC  
AACTACGACGACTACGACCTTATCGACAAGTACTAACTCAGTTCTACC  
ACCCACGATCCTAATGTGATGAGACGACATGCGAACGATGATTTTTACAAGG  
CGCATTGCACATCGCATATGTATGAGCTCTCACTGTCCAGCTTTGCGGCCTGG  
TGGACTATGCTTAATGCTCTAATTCTCATGGGAGCTTTTTGTATTGTACTACG  
ACATTGCTGCTTCCAGAACTTTACTGCAACCACCACCAAAGGCTATTGA (SEQ  
ID NO:5)

HCMV gN Amino Acid Sequence

MEWNTLVLGLLVLSVVAESSGNNSTSTSATTSKSSASVSTTKLTTVATTSATTT  
TTTTLSTTSTKLSSTTHDPNVMRRHANDDFYKAHCTSHMYELSLSSFAAWWTM  
LNALILMGAFCIVLRHCCFQNFTATTTKGY\* (SEQ ID NO:6)

FIG. 13

HCMV gH cDNA Sequence

ATGCGGCCCCGGCCTCCCCCCTACCTCACTGTCTTCACCGTCTACCTCCTCAGTCACC  
TACCTTCGCAACGATATGGCGCGGACGCCGCATCCGAAGCGCTGGACCCTCACGCAT  
TTCACCTACTACTCAACACCTACGGGAGACCCATCCGCTTCCTGCGTGAAAACACCA  
CCCAGTGCACCTACAACAGCAGCCTCCGTAACAGCACGGTCGTCAGGGAAAACGCC  
ATCAGTTTCAACTTTTTTCCAAAGCTATAATCAATACTATGTATTCCATATGCCTCGAT  
GTCTTTTTGCGGGTCTCTGGCGGAGCAGTTTCTGAACCAGGTAGATCTGACCGAAA  
CCCTAGAAAGATACCAACAGAGACTTAACACCTACGCATTGGTATCCAAAGACCTGG  
CCAGCTACCGATCTTTTTTCGCAGCAGCTGAAGGCACAAGACAGCCTGGGTCAGCAGC  
CCACCACCGTGCCACCGCCCATTTGATCTGTCAATACCTCACGTTTGGATGCCACCCCA  
AACCCTCCACACGACTGGAAGGGATCGCACACCACCTCGGGACTACATCGGCCAC  
ACTTTAACCAGACCTGTATCCTCTTTGATGGACACGATCTGCTTTTCAGCACCGTTAC  
GCCCTGTCTGCACCAGGGCTTTTACCTCATGGACGAACCTACGTTACGTTAAAATCAC  
ACTGACCGAGGACTTCTTCGTAGTTACGGTATCTATAGACGACGACACACCCATGCT  
GCTTATCTTCGGTCATCTTCCACGCGTACTCTTCAAAGCGCCCTATCAACGCGACAAC  
TTTATACTACGACAACTGAAAAACACGAGCTCCTGGTACTAGTTAAGAAAGCTCAA  
CTAAACCGTCACTCCTATCTCAAAGACTCGGACTTTCTCGACGCCGCACTCGACTTCA  
ACTACCTGGACCTCAGCGCACTGTTACGTAACAGCTTTCACCGTTACGCTGTAGACGT  
ACTCAAAAGCGGTCGATGTCAAATGTTGGACCGCCGCACGGTAGAAATGGCCTTCGC  
CTACGCATTAGCACTGTTTCGCGGCAGCCCGACAAGAAGAGGCCGGCACCGAAATCTC  
CATCCACAGAGCCCTAGACCGCCAGGCCGCACTCTTACAAATACAAGAATTTATGAT  
CACCTGCCTCTCACAAACACCACCACGCACCACATTGCTGCTATATCCCACAGCCGT  
GGACCTGGCCAAACGAGCCCTCTGGACGCCGGACCAGATCACCGACATCACCAGCCT  
CGTACGCCTGGTCTACATACTTTCTAAACAGAATCAGCAACATCTCATTCCCCAGTGG  
GCACTACGACAGATCGCCGACTTTGCCCTACAATTACACAAAACGCACCTGGCCTCT  
TTTCTTTCAGCCTTCGCGCGCCAAGAACTCTACCTCATGGGCAGCCTCGTCCACTCCA  
TGTTGGTACATACGACGGAGAGACGCGAAATCTTCATCGTAGAAACGGGCCTCTGTT  
CATTGGCCGAGCTATCACACTTTACGCAGTTGCTAGCTCATCCGCACCACGAATACCT  
CAGCGACCTGTACACACCCTGTTCCAGTAGCGGGCGACGCGATCACTCGCTCGAACG  
CCTCACGCGTCTCTTCCCCGATGCCACCGTTCTCTGCTACCGTTCCCGCCGCCCTCTCC  
ATCCTATCTACCATGCAACCAAGCACGCTGGAAACCTTCCCCGACCTGTTTTGTCTGC  
CGCTCGGCGAATCCTTCTCCGCGCTAACCGTCTCCGAACACGTCAGTTATGTCGTAAC  
AAACCAGTACCTGATCAAAGGTATCTCCTACCCTGTCTCCACCACCGTCGTAGGCCA  
GAGCCTCATCATACCCAAACGGACAGTCAAATAAATGCGAACTAACGCGCAACA  
TGCACACCACACACAGCATCACAGCGGCGCTCAACATTTCACTAGAAAACCTGCGCCT  
TTTGCCAAAGCGCCCTGCTAGAATACGACGACACGCAAGGCGTCATCAACATCATGT  
ACATGCACGACTCGGACGACGTCCTTTTCGCCCTGGATCCCTACAACGAAGTGGTGG  
TCTCATCTCCGCGAACTCACTACCTCATGCTTTTGAAAAACGGTACGGTCCTAGAAGT  
AACTGACGTGCTGCTGGACGCCACCGACAGTCGTCTCCTCATGATGTCCGTCTACGC  
GCTATCGGCCATCATCGGCATCTATCTGCTCTACCGCATGCTCAAGACATGCTGA  
(SEQ ID NO:7)

FIG. 14

HCMV gH Amino Acid Sequence

MRPGLPPYLTVFTVYLLSHLPSQRYGADAASEALDPHAFHLLLNTYGRPIRFLRE  
NTTQCTYNSSLRNSTVVRENAISFNFFQSYNQYYVFHMPRCLFAGPLAEQFLNQV  
DLTETLERYQQRLNTYALVSKDLASYRSFSQQLKAQDSLGGQPTTVPPPIDLSIPH  
VWMPPQTTPHDWKGSHTTSGLHRPHFNQTCILFDGHDLLFSTVTPCLHQGFYLM  
DELRVVKITLTEDFFVVTVSIDDDTPMLLIFGHLPRVLFKAPYQRDNFILRQTEKH  
ELLVLVKKAQLNRHSYKDSDFLDAALDFNYLDLSALLRNSFHRYAVDVLKSGR  
CQMLDRRTVEMAFAYALALFAAARQEEAGTEISIPRALDRQAALLQIQEFMITCL  
SQTPPRTTLLLYPTAVDLAKRALWTPDQITDITSLVRLVYILSKQNQQHLIPQWAL  
RQIADFALQLHKTHLASFLSAFARQELYLMGSLVHSMLVHTTERREIFIVETGLCS  
LAELSHFTQLLAHPHHEYLSDLYTPCSSSGRRDHSRLRLTRLPDATVPATVPAA  
LSILSTMQPSTLETFPDLFCLPLGESFSALTVSEHVSYYVTNQYLIKGISYPVSTTV  
VGQSLIITQTDSTKCELTRNMHTTHSITAALNISLENCAFCQSALLEYDDTQGV  
NIMYMHDSDDVLFALDPYNEVVVSSPRTHYLMMLKNGTVLEVTDVVVDATDSR  
LLMMSVYALSAIIGIYLLYRMLKTC\* (SEQ ID NO:8)

FIG. 15



HCMV gL cDNA Sequence

CGTTTTAGGGATCGAAGACCTGAGCGCCAACTTTCGGCGCCAACTGGCTCCTT  
ACCGTCACACTCTCATCGTGCCGCAGACTTGATGTGCCGCCGCCGGATTGCG  
GCTTCTCTTTCTCACCTGGACCGGTGGTACTGCTGTGGTGTTGCCTTCTGCTGC  
CCATTGTTTCCTCAGTCGCCGTCAGCGTCGCTCCTACCGCCGCCGAGAAAGTC  
CCCGCGGAGTGCCCCGAACTAACGCGTCGATGCCTGTTGGGTGAGGTGTTTC  
AGGGTGACAAGTATGAAAGTTGGCTGCGCCCGTTGGTGAATGTTACCAGACG  
CGATGGCCCCGCTATCGCAACTTATTCGTTACCGTCCCGTTACGCCGGAGGCCG  
CCAACTCCGTGCTGTTGGACGATGCTTTTCTGGACACTCTGGCCCTGCTGTAC  
AACAATCCGGATCAATTGCGGGGCCCTGCTGACGCTGTTGAGCTCGGACACAG  
CGCCGCGCTGGATGACGGTGTGCGCGGCTACAGCGAGTGCGGCGATGGCTC  
GCCGGCCGTGTACACGTGCGTGGACGACCTGTGCCGCGGCTACGACCTCACG  
CGACTGTCATACGGGCGCAGCATCTTCACGGAACACGTGTTAGGCTTCGAGC  
TGGTGCCACCGTCTCTCTTTAACGTGGTGGTGGCCATACGCAACGAAGCCAC  
GCGTACCAACCGCGCCGTGCGTCTGCCCGTGAGCACCGCTGCCGCGCCCGAG  
GGCATCACACTCTTTTACGGCCTGTACAACGCAGTGAAGGAATTCTGCCTGCG  
TCACCAGCTGGACCCGCCGCTACTACGCCACCTAGATAAAATACTACGCCGGA  
CTGCCGCCCAGCTGAAGCAGACGCGCGTCAACCTGCCGGCTCACTCGCGCT  
ATGGCCCTCAAGCAGTGGATGCTCGCTAA (SEQ ID NO:9)

HCMV gL Amino Acid Sequence

RFRDRRPERQLSAPTGSLPSHSHRAADLMCRRPDCGFSFSPGPVVLLWCCLLLPI  
VSSVAVSVAPTAAEKVPAECPELTRRCLLGEVFQGDKEYESWLRPLVNVTRRDGP  
LSQLIRYRPVTPEAANSVLLDDAFLDTLALLYNNPDQLRALLTLLSSDTAPRWMT  
VMRGYSEC GDGSPAVYTCVDDL CRGYDLTRLSYGRSIFTEHVLGFELVPPSLFNV  
VVAIRNEATR TNRAVRLPVSTAA APEGITLFYGLYNAVKEFCLRHQLDPPLLRHL  
DKYYAGLPPELKQTRVNLP AHSRYGPQAVDAR\* (SEQ ID NO:10)

FIG. 16

HCMV gO cDNA Sequence

ATGGGGAGAAAAGAGATGATGGTGAGAGACGTCCCTAAGATGGTGTTTCTAA  
TATCTATATCTTTCTTGCTTGTTTCTTTCATAAACTGTAAAGTTATGTCAAAAG  
CGCTTTATAATCGTCCTTGGAGGGGCTTGGTACTGTCTAAGATAGGCAAATAT  
AAATTAGATCAGCTTAAGTTAGAAATTTTGAGACAACCTAGAAACGACTATTT  
CTACAAAATACAATGTAAGTAAACAACCGGTTAAAAATCTCACTATGAACAT  
GACAGAGTTTCCACAATACTACATTTTAGCGGGCCCCATTGAGAATTATAGTA  
TAACCTATCTGTGGTTTGATTTTATAGTACCCAGCTTAGAAAACCCGCAAAA  
TACGTTTACTCACAGTACAATCATACGGCTAAAACGATAACATTCAGACCCC  
CACCTTGTGGTACTGTGCCTTCCATGACTTGTCTTTCCGAAATGCTAAACGTTT  
CCAAACGTAATGATACTGGCGAACAAGGTTGCGGTAATTTACCCACGTTCAA  
CCCCATGTTTTTCAATGTACCGCGTTGGAACACCAAATTGTACGTGGGTCCGA  
CTAAGGTTAACGTAGATAGTCAAACGATTTATTTTCTAGGTTTAACCGCCCTG  
CTTTTACGTTACGCACAACGCAACTGTACACACAGTTTCTACCTGGTTAACGC  
CATGAGCCGGAATCTATTTTCGCGTCCCCAAGTATATTAACGGCACCAAGTTA  
AAAAACACTATGCGAAAACATAAACGTAAACAAGCGCCCGTTAAGGAACAA  
TTCGAAAAAAAAGCTAAGAAAACCTCAGAGTACTACTACGCCATACTTTTCCT  
ATACAACGTCTGCCGCTCTCAACGTCCTACTAACGTGACTTATAGTATTACT  
ACCGCCGCAAGGCGGGTTTCCACGTCTACAATTGCTTATCGTCCTGATAGCAG  
CTTTATGAAGTCCATTATGGCCACACAGTTAAGGGACCTAGCAACGTGGGTG  
TATACCACTCTACGTTACCGGCAAAAATCCTTTTTGTGAACCAAGCCGCAACCG  
AACCGCCGTGTCAGAAATTTATGAAAAACACGCACGTACTAATCCGTAACGAA  
ACGCCGTACACTATTTACGGTACTCTCGACATGAGCTCCTTATATTACAACGA  
AACCATGTTTCGTGGAAAACAAAACAGCTTCCGATAGTAACAAAACCTACACCT  
ACGTCACCATCAATGGGGTTTTCAGAGAACATTTATAGATCCCCTGTGGGACT  
ATCTAGACTCGCTGCTGTTTCTAGATGAGATTCGTAACTTTAGCCTCCGGTCA  
CCCACGTATGTAAACCTTACCCCGCCGGAACACCGCCGGGCTGTAAATCTGT  
CCACCCTCAATAGCCTTTGGTGGTGGTTGCAGTAA (SEQ ID NO:11)

HCMV gO Amino Acid Sequence

MGRKEMMV RDV PKM VFLISIS FLLV SFINCKVMSKALYNRPWRGLVLSKIGKYK  
LDQLKLEILRQLETTISTKYNVSKQPVKNLTMNMTTEFPQYYILAGPIQNYSTYWL  
FDYSTQLRKPAKYVYSQYNHTAKTITFRPPPCGTVPSMTCLSEMLNVSKRNDT  
GEQGCNFTTFNPMFFNVPRWNTKLYVGPTKVNVDSTIYFLGLTALLRYAQR  
NCHSFYLVNAMSRLFRVPKYINGTKLKNMTRKLRKQAPVKEQFEKKAKKT  
QSTTTPYFSYTTSAALNVTTNVTYSITTAARRVSTSTIAYRPDSSFMKSIMATQLR  
DLATWVYTTLRYRQNPFCPSRNRTAVSEFMKNTHVLIRNETPYTIYGTLDMSLL  
YYNETMFVENKTASDSNKTTPTSPSMGFQRTFIDPLWDYLDLSLLFLDEIRNFSRLS  
PTYVNLTPPEHRRVNLSTLNSLWWWLQ\* (SEQ ID NO:12)

FIG. 17

HCMV pp65 cDNA Sequence

ATGGAGTCGCGCGGTGCGCGTTGTCCCGAAATGATATCCGTA CTGGGTCCCATTTCG  
GGGCACGTGCTGAAAGCCGTGTTTAGTCGCGGCGATACGCCGGTGCTGCCGCACGAG  
ACGCGACTCCTGCAGACGGGTATCCACGTACGCGTGAGCCAGCCCTCGCTGATCTTG  
GTATCGCAGTACACGCCCCGACTCGACGCCATGCCACCGCGGCGACAATCAGCTGCAG  
GTGCAGCACACGTACTTTACGGGCAGCGAGGTGGAGAACGTGTCGGTCAACGTGCA  
CAACCCCCACGGGGCCGAAGCATCTGCCCCAGCCAGGAGCCCATGTGCTGATCTATGTGTA  
CGCGCTGCCGCTCAAGATGCTGAACATCCCCAGCATCAACGTGCACCACTACCCGTC  
GGCGGCCGAGCGCAAACACCGACACCTGCCCGTAGCTGACGCTGTGATTACACGCGTC  
GGGCAAGCAGATGTGGCAGGCGCGTCTCACGGTCTCGGGACTGGCCTGGACGCGTC  
AGCAGAACCAGTGGAAGAGCCCGACGTCTACTACACGTCAGCGTTCGTGTTTCCCA  
CCAAGGACGTGGCACTGCGGCACGTGGTGTGCGCGCACGAGCTGGTTTGCTCCATGG  
AGAACACGCGCGCAACCAAGATGCAGGTGATAGGTGACCAGTACGTCAAGGTGTAC  
CTGGAGTCCTTCTGCGAGGACGTGCCCTCCGGCAAGCTCTTTATGCACGTCACGCTG  
GGCTCTGACGTGGAAGAGGACCTGACGATGACCCGCAACCCGCAACCCCTTCATGCGC  
CCCCACGAGCGCAACGGCTTTACGGTGTTGTGTCCCAAAAATATGATAATCAAACCG  
GGCAAGATCTCGCACATCATGCTGGATGTGGCTTTTACCTCACACGAGCATTTTGGG  
CTGCTGTGTCCCAAGAGCATCCCGGGCCTGAGCATCTCAGGTAACCTGTTGATGAAC  
GGGCAGCAGATCTTCCTGGAGGTACAAGCCATACGCGAGACCGTGGAACCTGCGTCA  
GTACGATCCCGTGGCTGCGCTCTTCTTTTCGATATCGACTTGCTGCTGCAGCGCGGG  
CCTCAGTACAGCGAGCACCCACCTTCACCAGCCAGTATCGCATCCAGGGCAAGCTT  
GAGTACCGACACACCTGGGACCGGCACGACGAGGGTGCCGCCCAGGGCGACGACGA  
CGTCTGGACCAGCGGATCGGACTCCGACGAAGAACTCGTAACCACCGAGCGCAAGA  
CGCCCCGCGTCACCGGCGGCGGCGCCATGGCGGGCGCCTCCACTTCCGCGGGCCGCA  
AACGCAAATCAGCATCCTCGGCGACGGCGTGCACGTGCGGGCGTTATGACACGCGGCC  
GCCTTAAGGCCGAGTCCACCGTCGCGCCCCGAAGAGGACACCGACGAGGATTCCGAC  
AACGAAATCCACAATCCGGCCGTGTTACCTGGCCGCCCTGGCAGGCCGGCATCCTG  
GCCCCGAACCTGGTGCCCATGGTGGCTACGGTTCAGGGTCAGAATCTGAAGTACCAG  
GAATTCTTCTGGGACGCCAACGACATCTACCGCATCTTCGCCGAATTGGAAGGCGTA  
TGGCAGCCCCGCTGCGCAACCCAAACGTCGCCGCCACCGGCAAGACGCCTTGCCCCGG  
CCATGCATCGCCTCGACGCCCAAAAAGCACCGAGGTTGA (SEQ ID NO:13)

HCMV pp65 Amino Acid Sequence

MESRGRRCPEMISVLGPISGHVLKAVFSRGDTPVLPHETRLLQTGIHVRVSQPSLILVSQY  
TPDSTPCHRGDNQLQVQHTYFTGSEVENSVNVHNPTGRSICPSQEPMSIYVYALPLKML  
NIPSINVHHYPSAAERKHRHLPVADAVIHASGKQMWQARLTVSGLAWTRQQNQWKEPD  
VYYTSAFVFPTKDVALRHVVCAHELVCSMENRATKMQVIGDQYVKVYLESFCEDVPS  
GKLFMHVTLGSDVEEDLTMTRNPQPFMRPHERNGFTVLCPKNMIKPKGISHIMLDVAFT  
SHEHFGLLCPKSIPGLSISGNLLMNGQQIFLEVQAI RETVELRQYDPVAALFFFDIDL LQR  
GPQYSEHPTFTSQYRIQGKLEYRHTWDRHDEGAAQGD DDDVWTS GSDSDEELVTTERKT  
PRVTGGGAMAGASTSAGRKRKSASSATACTSGVMTRGRLKAESTVAPEEDTDEDS DNEI  
HNPAVFTWPPWQAGILARNL VPMVATVQGGQNLKYQE FFDANDIYRIFAELEGVWQPA  
AQP KRRRHRQDALPGPCIASTPKKHRG (SEQ ID NO:14)

FIG. 18

HCMV pp150 cDNA Sequence

ATGAGTTTGCAGTTTATCGGTCTACAGCGGCGCGATGTGGTAGCCCTGGTCAACTTTCTGCGC  
CATCTCACGCAAAAGCCCCGACGTGGATCTCGAGGCACACCCCAAGATCCTGAAAAAATGTGG  
CGAAAAACGCCTGCACCGGCGTACGGTGCTGTTCAACGAGCTCATGCTTTGGTTGGGATACTA  
CCGCGAGCTGCGTTTTTACAACCCCGACCTCTCCTCAGTGCTCGAGGAGTTTCGAGGTGCGTTG  
CGTGCGCGTGGCGCGTCCGCGGTACACTTACCCGTTCCGGTGATCGTGGAAGGCGCGTGACCA  
CCTGGCTGTGCTAGACCGTACCGAATTCGATACGGACGTGCGCCACGATGCCGAGATCGTGGA  
ACGCGCGCTCGTAAGCGCGGTCAATTCTGGCCAAGATGTCCGGTGC GCGAGACGCTGGTCACAG  
CCATCGGCCAGACGGAACCCATCGCCTTTGTGCACCTCAAGGATACGGAGGTGCAGCGCATTG  
AAGAAAACCTGGAGGGTGTGCGCCGTAACATGTTCTGCGTGAAACCGCTCGACCTTAACCTGG  
ACCGGCACGCAACACGGCGCTGGTCAACGCCGTCAACAAGCTCGTGTACACGGGCGCTCTC  
ATCATGAACGTGCGCAGGTCTTGGGAGGAGCTGGAGCGCAAATGTCTGGCGCGCATTACAGGA  
GCGCTGCAAGCTGCTGGTCAAGGAGCTGCGCATGTGCCTTTCCCTTTGATTCCAACCTACTGCGC  
AATATCCTCAAGCACGCCGTGGAAAACGGCGACTCGGCCGACACGCTGTTGGAGCTGCTCATC  
GAGGACTTTGATATCTACGTGGACAGCTTCCCACAGTCGGCGCACACGTTTTTGGGCGCGCGC  
TCGCCGTCGTTGGAGTTTGACGATGACGCCAATCTCCTCTCGCTCGGCGGCGGTTTCGGCCTTCT  
CGTCGGTACCCAAGAAACATGTCCCCACGCAGCCGCTGGACGGCTGGAGCTGGATCGCCAGT  
CCCTGGAAGGGACACAAACCGTTCCGCTTCGAGGCCCATGGTTCTCTGGCACCGGCCGCCGAA  
GCCACGCTGCCCGTTCGGCGGCGCTCGGCTATTACGACGAAGAGGAAAAGCGTCGCGAGCG  
GCAGAAACGGGTGGACGACGAGGTGGTGCAGCGTGAGAAACAGCAGCTGAAGGCTTGGGAG  
GAGAGGCAGCAGAACCTGCAGCAACGTACGACGAACACCGCCCCCGGCACGTAAACCGAG  
CGCCTCCCGGAGGCTCTTTGGCTCCAGTGCCGATGAGGACGACGACGATGATGATGACGAGA  
AAAACATCTTTACGCCCCATCAAGAAACCGGGAAGTACGCGCAAGGGCGCCGCTAGTGGTGGC  
GGTGTTCAGCATTTTCAGCGGCCTGTTATCCTCGGGCAGTCAGAAACCGACCGAGCGGTCCC  
TTGAACATCCCGCAACAACAACAGCGTCACGCGGCTTTCAGTCTCGTCTCCCCGCAGGTGACC  
AAGGCCAGCCCGGAAGGGTCCGTCGGGACAGCGCGTGGGACGTGAGGCCGCTCACGGAGA  
CCAGAGGGGATCTTTTCTCGGGCGACGAGGATTCCGACAGCTCGGATGGCTATCCCCCAACC  
GTCAAGATCCGCGTTTACCGACACGCTGGTGGACATCACGGATACCGAGACGAGCGCCAAA  
CCGCCCGTCACACCGCGTACAAGTTCGAGCAACCGACGTTGACGTTCCGGCGCCGGAGTTAAC  
GTTCTGCTGGCGCCGCGCTGCCATCCTCACGCCGACGCCTGTCAATCCTTCCACGGCCCCC  
GCTCCGGCCCCGACACCTACCTTCGCGGGTACCCAAACCCCGGTCAACGGTAACCTCGCCCTGG  
GCTCCGACGGCGCGCTTGCCCGGGGATATGAACCCCGCAACTGGCCGCGCAACCGCGCTG  
GGCCCTCAAGAATCCTCACCTGGCTTACAATCCCTTCAGGATGCCTACGACTTCCACGGCTTCT  
CAAAACACCGTGTCCACCACCCCTCGGAGGCGCTCGACTCCACGCGCCGCGGTGACACAAAC  
AGCGTCTCGGGACGCCGCTGATGAGGTTTGGGCTTTAAGGGACCAAACTGCAGAGTCACCGG  
TCGAAGACAGCGAGGAGGAAGACGACGACTCCTCGGACACCGGCTCCGTCGTCAGCCTGGGA  
CACACAACACCGTCGTCGATTACAACAACGACGTCATTTGCCTCCAGTCAGACGCCCGAG  
CAGTCGACGCCGTCCAGAATACGTAAAGCTAAGTTATCGTCTCCAATGACGACGACATCCACG  
AGCCAGAAACCGGTGCTGGGCAAGCGAGTCGCGACGCCGCACGCGTCCGCCCGAGCGCAGAC  
GGTGACGTCGACGCCGTTTACGGGAAGGCTAGAGAAACAGGTGTCGGGCACGCCGTCGACGG  
TACCCGCCACGCTGTTGCAACCTCAACCGGCTTCGTCTAAAACGACGTCATCAAGGAACGTGA  
CTTCTGGCGCGGGAACCTCTTCCGCTTCTTCGGCTCGACAGCCGTCAGCCTCGGCGTCCGTTTT  
GTCGCCCACGGAGGATGATGTCGTGTCCCCCGCCACATCGCCGCTGTCCATGCTTTCGTCAGC  
CTCTCCGTCCCCGGCCAAGAGTGCCCCCCCCGTCTCCGGTGAAAGGCCGGGGCAGCCGCGTCGG  
TGTTCTTCTCTTGAACCTACTTTGGGCGGCAAGGCGGTGGTAGGTGACCGCCCTCGGTCCC  
CGTGAGCGGTAGCGCGCCGGTTCGCTGTCCGGCAGCAGCCGGGCGCCCTCGACCACGCCGA  
CGTATCCCCGCGTAACCACCGTTTACCCACCGTCGTCTACGGCCAAAAGCAGCGTATCGAATG  
CGCCGCCTGTGGCCTCCCCCTCCATCCTGAAACCGGGGGCGAGCGCGGCTTTGCAATCACGCC  
GCTCGACGGGGACCGCCGCGTAGGTTCCCCCGTCAAGAGCACGACGGGCATGAAAACGGTG  
GCTTTCGACCTATCGTCGCCCCAGAAGAGCGGTACGGGGCCGCAACCGGGTTCTGCCGGCATG  
GGGGGCGCAAAACGCCGTTCGGACGCCGTGCAGAACATCCTCCAAAAGATCGAGAAGATTAA  
GAACACGGAGGAATAG (SEQ ID NO:15)

FIG. 19

HCMV pp150 Amino Acid Sequence

MSLQFIGLQRRDVVALVNFLRHLTQKPDVDLEAHPKILKKCGEKRLHRRTVLFN  
ELMLWLGYRELFHNPDLSSVLEEFVRCVAVARRGYTYPFGDRGKARDHLA  
VLDRTFDTDVHRDAEIVERALVSAVILAKMSVRETLVTAIGQTEPIAFVHLKDT  
EVQRIEENLEGVRRNMFCVKPLDLNDRHANTALVNAVKNLVYTGRLLIMNVRR  
SWEELERKCLARIQERCKLLVKELRMCLSFDSNYCRNLIKHAVENGDSADTLLEL  
LIEDFDIYVDSFPQSAHTFLGARSPSLEFDDDDANLLSLGGGSAFSSVPKKHVPTQP  
LDGWSWIASPWKGHKPFRFEAHGSLAPAAEAHAARSAAVGYYDEEEKRRERQK  
RVDDEVVQREKQQLKAWEEQQNLQQRQQQPPPPARKPSASRRLFGSSADEDD  
DDDDDEKNIFTPIKKPGTSGKGAASGGGVSSIFSGLLSSGSQKPTSGPLNIPQQQQ  
RHAASFSLVSPQVTKASPGRVRRDSAWDVRPLTETRGLFSGDEDSDDSSDGYPN  
RQDPRFTDTLVDITDTETSAPKPPVTTAYKFEQPTLTFGAGVNVNPAGAGAAILTPTP  
VNPSTAPAPAPTPTFAGTQTPVNGNSPWAPTAPLPGDMNPANWPRERAWALKN  
PHLAYNPFRMPTTSTASQNTVSTTPRRPSTPRAAVTQTASRDAADEVWALRDQT  
AESPVEDSEEDDDSSDTGSVVSLGHTTPSSDYNNDVISPPSQTPEQSTPSRIRKAK  
LSSPMTTSTTSQKPVLGKRVATPHASARAQTVTSTPVQGRLEKQVSGTPSTVPAT  
LLQPQPASSKTTSSRNVTSGAGTSSASSARQPSASASVLSPTEDDVVSPATSPLSM  
LSSASPSPAKSAPPSPVKGRGSRVGVPSLKPTLGGKAVVGRPPSPVPVSGSAPGRLS  
GSSRAASTTPTYPVTTVYPPSSTAKSSVSNAPPVASPSILKPGASAAALQSRRSTG  
TAAVGSPVKSTTGMTVAFDLSSPQKSGTGPQPGSAGMGGAKTPSDAVQNILQK  
IEKIKNTEE (SEQ ID NO:16)

FIG. 20